# Rolle's Theorem Practice

Verify that the hypotheses of Rolle's Theorem are satisfied on the given interval, and find all values of $c$ in that interval that satisfy the conclusion of the theorem.

1. $f(x) = x^2 - 8x + 15;\ [3,5]$

2. $f(x) = x^3 - 3x^2 + 2x;\ [0,2]$

3. $f(x) = \cos x;\ \left[\frac{\pi}{2}, \frac{3\pi}{2}\right]$

4. $f(x) = \frac{1}{2}x - \sqrt{x};\ [0,4]$

5. $f(x) = \frac{1}{x^2} - \frac{4}{3x} + \frac{1}{3};\ [1,3]$

# Mean Value Theorem

Verify that the hypotheses of the Mean-Value Theorem are satisfied on the given interval, and find all values of $c$ in that interval that satisfy the conclusion of the theorem.

6. $f(x) = x^2 - x;\ [-3,5]$

7. $f(x) = x^3 + x - 4;\ [-1,2]$

8. $f(x) = \sqrt{x+1};\ [0,3]$

9. $f(x) = x - \frac{1}{x};\ [3,4]$

10. $f(x) = \sqrt{25 - x^2};\ [-5,3]$